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THE

POSITION AND PROSPECTS

OF

THE MEDICAL STUDENT.

AN ADDRESS

DELIVERED BEFORE THE

BOYLSTON MEDICAL SOCIETY OF HARVARD UNIVERSITY,

January 12, 1841,

BY OLIVER W. HOLMES, M. D.

Published at the request of the Society.

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ADDRESS.

It was not my good fortune, during the period of my studies, to be connected with the Society which I have the honor of addressing. I know enough, however, of its objects and of its history to feel sure that it will take an interest in every effort, however humble, which aims to illustrate the progress and promises of our science, to defend it against senseless clamor, to elevate the standard of the young men who have devoted their lives to its pursuit, to encourage them in their honorable toils, to warn them of their dangers, and even to point out their faults, without fear, though without any other authority than the call of truth and duty.

In making some remarks upon *the position and prospects of the Medical Student*, I must entreat you to allow me a somewhat wider range than the circle which includes only your own number. I would address myself through you to all the young men now in the course of their medical education who surround you, or who may be within the reach of my voice. If, therefore, there should be anything in this address which meets with your approval, be pleased to receive it as my return for the attention you have shown me ; if there should be anything that may sound harsh to your ears, suffer it, not for your own sakes, nor as intended for you, but for the sake of the great body of students of which you constitute a part, and which will furnish its candid interpreters and judges.

So wide a subject as I have chosen can only be partially treated within the somewhat liberal hour that I shall venture to claim. In speaking of the present *position* of the medical student, it

seems becoming to pass over many comparisons that might prove unfavorable, in some respects, to the past. The existing condition of medical schools, the character of the present race of teachers, the standard of the text-books generally employed, are among these. Leaving these out of the question, there is enough to interest us in glancing at the passing phases of each of the branches that make up the usual course of study ; and in pointing out certain influences that result from the character of our pursuits. Again, the *prospects* which open before the medical student in his professional life, would require a long roll of canvass for their display, and you must be content with a cabinet picture instead of a panorama. The effect of the cold and slow welcome which the world offers to the young physician, upon his mind and feelings ; the attitude assumed by society towards medical science at the present period ; the true way of meeting the various follies that assail the medical practitioner ; these are the points which I shall briefly illustrate, to the exclusion of many others which the title I have chosen might equally embrace.

The branches that unite to form the medical science never presented themselves to the medical student in a manner more adapted to kindle his zeal and energies than at the present time. In almost every department, the recent impress or the active progress of improvement is most distinctly visible.

Anatomy and Physiology have received from the hand of art an instrument which has enabled them to penetrate, with almost miraculous skill, into the mysteries of living structures and functions. From the days of Malpighi and Leeuwenhoeck, whose admirable observations were made with simple lenses, until those of Prevost and Dumas, or even later, it could hardly be said that any great additions were made to the intimate knowledge of animal structure by means of the microscope. That the blood corpuscles should not have been known to be flattened disks until the time of Hewson, must shew the former imperfection of the means of observation to any one who has seen them rolling over like sixpences in the field of a common modern instrument. The fanciful descriptions of Sir Everard Home and Mr. Bauer, made only to be contradicted ; the too notorious mystification in the matter of the acarus scabiei in the hospitals of Paris, justified in some

measure the contempt into which investigations of this kind gradually declined. Such insuperable difficulties seemed to attend the construction of compound microscopes tolerably free from the effects of chromatic and spherical aberration, that about twenty years since men like Biot and Wollaston predicted it would never rival the simple instrument. Soon after the year 1820, by one of those simultaneous impulses so common at the period of great discoveries, the attention of several opticians and mathematicians of the continent and of England was turned to this important scientific problem. The result was the achromatic compound microscope in its present state of wonderful perfection.

We are poised midway between two material infinites, the infinitely great and the infinitely little. The confines of the first, strange as it may seem, were thoroughly explored before we had reached the inner borders of the second. Uranus and the asteroids were led in by Science like wild colts from the outskirts of creation, before the acarus and the cheese-mite had settled the duel concerning their identity. But when at length the microscope was taken with its sudden convulsion of improvement, a new world of wonders opened upon the eye of the observer of nature. The same scrupulous sagacity which had swept the sparkling floor of the firmament beyond the orbit of Saturn, the same daring which, in the words of the elder Herschel, had "gauged the heavens" with its mighty cylinders, was now to be seen counting the stomachs of once invisible animalcules and diving into the abysses of an impalpable drop of fluid. At the present time there is scarcely a line in structural or physiological anatomy that is not written over by the hand of recent microscopic discovery. The texture of every organ has been determined with a degree of precision before unapproached. The fluids have been shown to contain and to evolve regular structures. If the blood-corpuscles are not *proved* to be "swimming glands," the expression no longer excites the idea of anything improbable or unnatural. A geologist hands to his physiological friend a particle broken from a fossil tooth, and requires the nature, size, habits, food, date, of the behemoth, the megalosaurus, the palæotherium that chewed upon it. The physiologist grinds a speck of it down to a translucent lamina, saturates this shaving with the light from a little concave mirror, screws his inexorable lenses to their focus, and extorts a truth

which nature had buried beneath the deluge and blotted with the night of uncounted ages. The form of the branching tubes is manifest; *ex pede Herculem;* as the tubes so the tooth; as the tooth so the creature; the perished ante-diluvian rises out of his fossil sepulchre. The unaccomplished promise of Archimedes hardly surpasses the performance of modern philosophy;—give her but a thread from the web of nature and she will suspend a living universe upon it; give her but a ray from the luminous fountain of truth, and she will catch a photograph from an extinct creation.

But how can we speak in terms of sufficient delight and wonder of that discovery which has lifted the veil between the mortal eye and the life-giving energy, at the moment when the flowing atoms of matter are uniting into the mysterious harmony of organized structure! The recent microscopic discoveries concerning the development of living tissues, animal and vegetable, are among the most remarkable truths ever yet reached by observation.

By the long, winding path of facts, we arrive at the clear summits of general laws. From these, as from celestial observatories, we contemplate more nearly the all-embracing Spirit of the universe. A general law is the expression of wisdom and power not yet concealed by their own incidental manifestations; it is a circle that surrounds the Deity within the outer wall of phenomena. The discoveries just referred to may be ranked, for their universality of extent, with the loftiest generalizations of the astronomer and the chemist.

The law of gravity reduced to a single principle the varied movements of those great masses which traverse the immensities of space.

The law of combination in definite proportions brought down to a graduated scale the hitherto chaotic range of chemical compounds, and led by irresistible influence to the great primordial truth of the atomic constitution of matter.

The most sublime vision that ever dawned upon the eye of discovery, is that which reveals the evolution of new worlds from the luminous ether of the nebulæ, commencing by the condensation of their particles in a solid nucleus at the centre of gravitation.

This telescopic phenomenon has at length found its counterpart in the microscopic history of the primitive organization of the living tissues. It is now received as an established truth that every or-

ganized structure is developed from a cell, itself evolved from a nucleus, which again is constituted by the spontaneous aggregation of granules in the midst of a fluid. Thus the tube of the astronomer has carried his vision into illimitable space, and shown him the hand of creative power, as it shapes worlds and systems out of chaos; while the lens of the microscopic observer has lifted the invisible up to the level of his senses, to display the same eternal agency as it fashions a living creature from the elements of a formless fluid.

These are some of the results of the application of the microscope to anatomy and physiology. I will not speak of its employment in the investigation of diseased products, and in combination with chemical agents. These fields have but just been opened, and who can tell what mysteries are ready to burst into the flame of demonstration with the chance spark of any day of scientific labor?

Look again at the progress of chemistry in its application to the phenomena of life. The attempt has been made to shew, not merely that certain combinations and decompositions take place in living bodies, by which new products are evolved, and life kept active in the midst of the shifting organization, but the analyst has taken his balance, his measuring jar, his pound of food, and his *man*, and traced the material of support through the organs of the recipient, with all its successive changes, to its resolution into the elements of the earth or atmosphere, calling every organ to account for its share in exact decimals, as a manufacturer might trace the progress of a bale of cotton through the hands of his various operatives. The strictly medical page of chemistry has but just been fairly laid open. It is true that alkalis have long been given to correct acidity, and gases were respired in the days of Beddoes and mahogany-furnished cow-houses, but the experiments were for the most part obvious and of limited utility, or built upon fanciful speculations. But medical chemistry is beginning to deal with stricter problems. Given, a man in whose joints the insoluble urate of soda is depositing itself in solid masses; what element shall we throw in among these fighting atoms, to restore their equilibrium? The chemist looks over his tables of the elementary constitution of bodies, and finds that the required conditions are answered by the *benzoic acid*. He drops a certain number of

grains of this substance into the mouth of his human alembic, and the insoluble concretions are eliminated, as the soluble hippurate of soda. Such is gout, and such is science!

One fact like that just mentioned, is like one star in the heavens, the herald of a thousand that will soon be kindled. But let all magnificent promises be left out of sight, you may still be thankful for three great sources of knowledge, all bearing upon the history and treatment of disease, and which may be almost said to be peculiar to your time and that of your immediate predecessors. Pathological Anatomy, Auscultation, Medical Statistics,—these three great implements of knowledge are offered to you in a state of perfection unknown to many, at the period of their medical education, who, though your seniors, will occupy the same stage of action as yourselves.

Pathological anatomy is, in one sense, old ; bodies have been opened from an early period. There have been men profoundly skilled in the science of morbid change of structure before this age or the preceding age was born. But we can scarcely dispute that the general diffusion of knowledge through the medical world on this subject, and the reduction of pathological results to simple terms, may be dated since the beginning of the present century, and especially belong to the last half of this period.

Pathological anatomy was a chaos to the medical profession in general, until the following points were clearly made out. First, the character of inflammation in its different forms, and affecting different tissues, as distinguishable from various appearances long confounded with it. Secondly, the distinction of tubercle from all other morbid deposites, and the final determination of its invariable characters. Thirdly, the discrimination of malignant growths, and their ultimate reduction to the three forms of scirrhus, encephaloid and colloid.

At the time when Broussais erected his system, the characters of inflammation, especially as affecting the mucous tissues, were so little comprehended, that the whole fabric of our science tottered for a time before his audacious statements. A few vascular arborizations, the result of passive congestion, a little redness from cadaveric changes, were enough to demonstrate the existence of gastritis or gastro-enteritis, and all the dogmas, and all

the practical inferences belonging to the so called *physiological system*, followed in the wake of this error in observation. The subtlety of his reasoning, and the hissing vehemence of his style, effervescent as acids upon marble, aided the temporary triumph of his doctrine. Whatever others have done for its downfall, the deathblow came from the scalpel of Louis. That common continued fever is not gastro-enteritis, that tubercle is not essentially the consequence of inflammation; these two facts he placed beyond dispute, and from that moment the empire of Broussais began to dissolve. In vain did the old athlete writhe like Laocoon in the embrace of the serpents; his children, his darling doctrines, circled with coil upon coil of their iron antagonist, were slowly choked out of life, while he himself battled vainly to the last, with the whole strength of his Herculean energies. The physiological system, as a whole, passed away, and with it a mode of practice founded upon false principles, and often leading to dangerous practical conclusions. This was the immediate consequence of a more exact study of the characters of inflammation, joined to a nicer scrutiny of the individual organs.

The self-styled practical men of provincial celebrity sometimes sneer at the labors of the pathologist, as ignorant sailors laugh at the land-lubber who computes their captain's logarithms; alike unconscious that their path through doubt and danger is traced by the hand which is the object of their stupid laughter. At this very time, during this very day that passes over our heads, a hundred thousand leeches would have been draining the life-blood from that noble army of martyrs whom the physicians of America call their patients, in the vain hope of subduing an imaginary inflammation, had not the great French pathologist wilted down his youth upon the stone floor of the amphitheatre of La Charité, and sent out his new truths upon the winds that turn the weathercocks of medical Christendom!—The true characters of inflammation having once been fixed with a certain degree of exactness, the first great stumbling block in the way of the pathological anatomist was removed.

The diseases now known as tuberculous, were for a long period scattered and concealed under various disguises which prevented their real identity from being recognized. In the lymphatic glands tubercle was known as scrofula, in the bones as white swelling, in the lungs as phthisis, in various other internal

organs by no distinctive name whatever. Thus, the tuberculous affections were separated at their natural point of union, and became joined to various other diseases, with which their relations were wholly accidental. In the year 1810, for instance, when Bayle wrote his work on Phthisis, he recognized pulmonary tubercle only as one of six forms of the disease of which he was treating. Of the other five, one was characterized by what are commonly called gray granulations, another by the calcareous depositions which mark the seat of former tuberculous disease. The three remaining forms, the melanotic, the ulcerous, the cancerous, had no relation whatever with tuberculous disease. Here, as you may observe, a set of symptoms, called from the most remarkable one, *phthisis*, in connection with different changes affecting certain organs, namely, the lungs, was taken as the basis of arrangement for the facts collected by this distinguished observer. It followed among other consequences that the pathologist who trod in his footsteps learned to consider tuberculous consumption, and what he called cancerous consumption, as two varieties only of the same disease.

No error could be greater than this; none more calculated to mislead the inexperienced observer. Tubercle, and cancerous or malignant degeneration, are not only unlike each other in every circumstance of structure, mode of development, history and progress, but they appear to be actually in some sense the antagonists and almost irreconcilable opposites of each other. A cancerous patient is less likely to have tubercle, and a tuberculous patient less likely to have malignant disease, than another person suffering from some different affection.

It was not until all tuberculous affections, in whatever organ they might be found, were brought together as a natural group, and all other morbid changes separated from them, that their true history became easy to learn. The student is now well aware that the production of a single particle of genuine tuberculous matter in any portion of the system, is a formal declaration and warning, on the part of nature, of what she has suffered, has done, and is about to do. That hereditary influences, or ill treatment of the body in some form, have depressed the living energy below the standard of healthy existence; that every solid and fluid in the body is more or less imperfect in composition and organization; that the local manifestations at one or more points of the

system are the effects, and not the primary causes of a general morbid condition; that by a process of softening, and its destructive inflammatory consequences, the new deposition tends to destroy the texture of the part where it has occurred, and in this process to react more or less powerfully, perhaps fatally, on the system; that this process can only be effectually and certainly arrested by replacing every atom of the imperfectly vitalized organism with new and healthier particles, taken from the soil, the atmosphere, and the sunbeams; in other words, by causing a complete interstitial renovation of the body by proper food, and exercise in the midst of abundant air and light; all these facts, in all their numberless applications, follow from the discovery that any tuberculous affection has shown itself in the body. In every point of view, therefore, the distinction of tubercle from all other morbid deposits, and its recognition as the essential anatomical element of every disease where it is found, is of vast assistance to the pathologist and the practitioner.

Those whose education dates but a few years back, will remember the inextricable confusion that reigned upon the subject of malignant growths. What relation was held to each other by such diseases as the pancreatic and mammary sarcoma of Abernethy, the lardaceous tissue of the French writers, the spongoid inflammation of Burns, the cerebriform disease of Laennec, the medullary sarcoma, the milt-like tumor of other authors? To make the acquaintance of all these and many more seeming varieties, was like shaking hands with Briareus, or borrowing the glasses of Argus. Three principal forms have been found enough to include them all; and the forms of scirrhus and encephaloid, to embrace ninety-nine hundredths of the whole. The third species of malignant disease, colloid, though comparatively rare, is yet easily discriminated, with a very little attention, from every other morbid change of structure. The student has only to settle clearly in his mind the distinctive characters of these three kinds of disease in their different aspects and stages, and their tendencies and future progress, with all the inferences respecting their treatment acquired by past experience, are within his immediate grasp. A just classification, like the lens in an optical instrument, converges and brings into a clear image the scattered and refracted rays of individual observation.

I have spoken of inflammation, tubercle and malignant diseases, as having been brought to their respective foci by the labors of comparatively recent observers. Doubtless morbid anatomy has many other points requiring study and nice attention, but these lesions, after all, constitute the tripod of organic disease. Of the others, some are rare, and are hardly more than objects of occasional curiosity; such as melanosis and hydatids; and many are too obvious to be misunderstood; as mechanical injuries, perforations, and hemorrhages.

Once more, gentlemen, you may think yourselves singularly happy that at the period when you are entering into professional life, the value of Auscultation, or rather of the physical signs of disease, is permanently established, and the means of acquiring the necessary skill in this branch of our art, of easy attainment. Ten years ago it was not uncommon, in this centre of knowledge, to meet with persons of a certain degree of reputation in the medical profession, who considered the discoveries of Laennec as leading to little or nothing to be relied upon and of practical utility. I can but too well remember many remarks to this effect which were uttered to me or before me at the period when I was a student; sometimes by my companions, and sometimes by those whose age and standing ensured an exaggerated respect for their expressions. I shall never forget the contemptuous air of wisdom with which such remarks were made; the assumption, on the part of individuals, of a degree of sagacity which rendered all the methods of direct exploration unnecessary; the buzzing air of triumph with which every mistake, supposed or real, of the as yet inexperienced students of the art in question, was speckled over with the fly-blows of gossiping annotation. The remembrance of my own feelings at such times, listening to these unwise sarcasms, has given me so strong a spirit of rebellion against the authority of all men who talk too loudly of their own "experience," that I fear my sympathies will always be on the schoolboy side of every question, until time has driven me too beyond all equivocation into the ranks of spectacled wisdom, and ex officio infallibility.

It is idle now to expatiate upon all that we owe to the divining rod of thoracic disease. A few years ago some of us thought

it expedient to point out the reality and the extent of its utility to those around us who might have undervalued it. We should feel disposed at the present time, rather to suggest some cautions against its excessive use and its substitution for a more enlarged investigation of disease.

A physical exploration of a patient by a skilful person is an autopsy performed before death. This expression may convey an idea of its importance in the study of disease. But allow me to add one or two brief hints that may be useful to you hereafter in a class of cases you will too often be called to witness.

A prolonged examination is often very distressing to a feeble patient. Remember that your instrument of examination is a probe, feeling among your patient's vitals, with more or less suffering to him, however interesting it may be to yourself. Do not indulge your curiosity at his expense, any more than you would thrust the exploring instrument of surgery to the bottom of every sinus in a wound beyond the reach of art.

Remember that in most cases of tuberculous disease it is by no means indispensable, so far as the patient is concerned, to make out a topographical estimate of the exact amount and distribution of an undoubted mass of disease. It is sometimes quite as well not to do it, and thus to save the necessity of answering disagreeable questions.

When you begin to examine a supposed phthisical patient, settle in your own mind, at least, what you are to tell him in case you find the signs that were feared. Learn how far he wishes to know his state, and form your opinion how far he ought to know it, before your examination has made you master of the secret of his life or death.

Remember that many tuberculous patients are suspicious as jealousy, impressible as hysteria, acute as insanity; that with all their supposed unconsciousness of their state, they are often singularly alive to apprehension; and be careful that you do not startle them, as is sometimes done, by employing percussion in such a manner as to astonish even their unaccustomed ears with the ominous character of its sounds, or by any expression of surprise at what you may observe.

Whatever you suppose you have discovered, beware, O beware how you commit yourself in a too confident prognosis.

The patient whom you have found resounding under the clavicles like the Trojan horse, breathing with the respiratory murmur of a prize-fighter, may die in three months with his lungs devoured by tuberculous disease. The patient whom you have condemned on the faith of indisputable physical signs, may greet you with a pleasant smile for many years, and live to write your obituary.

Remember that the errors of stethoscopists spring much oftener from the faults of their brains than of their ears. Mistaking a single sound will rarely lead a man into important error who duly reflects upon the accompanying signs and symptoms. Observation may trip now and then without throwing you, for her gait is a walk; but inference always gallops, and if she stumbles, you are gone.

Finally, if you are ever called, as I was a few years ago, to visit a patient in consultation with a physician much older than yourself, and your respected friend, as in that case, insists repeatedly, inveterately, and in every instance, on applying the *wrong end* of the stethoscope to his ear, while he gravely rests the ivory ear-piece upon the patient's thorax, remember the scene between Gil Blas and the archbishop, and do not trifle with the wisdom of experience in attempting to teach your scientific grandfather.

I have said that you have also good cause to be thankful that you were born into the period of Medical Statistics. I would speak briefly in this place respecting one branch of this subdivision of science, namely, the application of the numerical system to the analysis of individual diseases. A great deal has been said and written upon the application of arithmetic to medicine, which there is no need of repeating or disputing here. Much ingenuity has sometimes been shown in arguing against the use and practicability of this mode of investigation, or in magnifying its possible abuses and chances of leading into error. A few sentences may despatch the whole of these objections. And first, facts must be settled with accuracy before any attempt is made to count them. Error in these is fatal; but no more so when they are counted than when they are reasoned from without counting. This is self-evident. Certainly it is not *counting* our spurious coin, but *having* it that makes us poorer than we suppose. Secondly and lastly, it should be remembered what the numerical system pro-

fesses and what it does not profess to do. It professes to furnish us the means of extracting the collective results of a mass of individual facts too long to be analyzed by the unaided memory. It *does not* profess to be answerable for all the conclusions we may see fit to draw from these results. I will offer you an illustration in miniature.

Given, a hundred patients affected with the small pox between the months of January and February. Of these patients ten die. Given, another hundred patients who had small pox between the months of June and August. Of these patients five die. The fact of the relative mortality in these cases can only be accurately expressed in numbers, and the numbers can only be obtained by counting. The case is as clear as that of a merchant's balance.

But now suppose an attempt to reason from this result. *Small pox is twice as fatal in winter as in summer.* Such a conclusion might be drawn, and yet be entirely erroneous. Perhaps the winter patients were in a poor quarter of a city, and the others in a healthier section—perhaps they were the subjects of a different and more malignant epidemic—perhaps they were treated in a different manner.

Just so the merchant sums up his accounts, strikes his balance, finds that he has gained his ten thousand dollars, draws an erroneous practical conclusion, acts upon it, and becomes a bankrupt. Is that any reason why the state of his affairs should not be always ascertained by an exact arithmetical process? Or shall his clerks read over the day book and ledger, and without summing up the columns, write an occasional essay containing their "impressions" as to the conditions of his business; that his operations in sugar have been "frequently" successful, while his dealings in cotton are "probably" attended with a "considerable" amount of loss?

Enough, and more than enough of argument on so plain a matter. The numerical system is of so obvious utility in medicine that it could not have been wholly overlooked by former observers. On the pages of Bayle lying before me are two tables drawn up from his observation more than thirty years ago, giving the exact proportion in which lesions of the larynx and of the alimentary canal occurred in a hundred cases of phthisis.

Numerical analysis in medicine is analogous to quantitative anal-

ysis in chemistry. The words of Liebig applied to the latter, might, with a very slight alteration of words, be applied to the former. "From the moment that we begin to look earnestly and conscientiously for the true answers to our question ; that we take the trouble, by means of weight and measure, to fix our observations, and express them in the form of equations, these answers are obtained without difficulty."

The advance of Medical Statistics in all its branches, as shown not merely by the works of Louis and his followers, but in the Reports drawn up by the authority of different governments, especially those of the Registrar General of England and the papers founded upon them, and in the investigation of the effects of climate and other hygienic influences, is most obvious. The accurate statistical laborer is setting a machinery in motion, the results of which he can never certainly foresee. But just as the carpet-loom, rightly worked, must produce a given figure, as the barrel-organ must utter a certain tune, as the calculating machine must render a precise answer, so his toils must lead to some definite, harmonious, and absolute results. You are fortunate that such an influence is making itself clearly felt at the period when you are entering the profession.

There are many improvements in several most important departments of medical science to which it is only necessary to allude.

First in consequence, is the ever-growing conviction in and out of the profession, of the comparative insignificance of *drugging* in all its forms as an antagonist to disease. That the body is a changeable compound of particles, which must be properly aired, washed, agitated, rested, protected and renewed, in order that their changes may run on in the rhythm called health ; and that no drug can take the place of these conditions any more than it can give music to a piano-string which is loose or broken, is to some extent understood. A vast deal of annoyance and often positive injury is spared to the patient, while the physician has learned submission to the laws of nature, and grown less presumptuous in his expectations and promises.

Concerning various practical improvements in the different branches of our art, it is not my intention to make any particular

remarks. The simplification of prescriptions, the isolation of the active principles of many vegetable products, the introduction of new and useful remedies into practice, are matters of interest, but these may be considered as a part of the steady growth of knowledge, and hardly as marking an epoch of progress. The same remark may be applied to the improvements in mechanical surgery. Strictly speaking, this art may be susceptible of continual improvement, in the same way as watch-making or printing; but that each of these pursuits has pretty clearly shown all its essential capabilities, will be generally conceded. We would not undervalue the recent achievements of ingenuity in the invention of subcutaneous operations and the revival and improvement of plastic surgery. But that there are distinct and visible limits to this department is so clear that the wildest optimist can hardly look forward to the time when such operations as the "total extirpation of the sphenoid," once mentioned in a London journal, shall be performed with impunity upon the living subject.

I have little to say respecting the progress of another branch of the profession, in which the more extended employment of auscultation and the discovery of kiestein are the most conspicuous novelties. I must, however, leave my path a moment for the sake of calling your most serious attention to a fact not often enough insisted upon—namely, the contagiousness of puerperal fever. Having developed the evidence on this point at some length in a journal recently published in this place,* you will not expect a repetition of it here. Allow me only to repeat my conclusions to you.

The offices of an attendant upon the parturient female, in the vast majority of cases, consist of very little more than the prevention of improper meddling, and the promotion of his patient's comfort. The accidents involving life are mere exceptions in the course of a natural process, and when they occur his power over them is generally limited, and often nothing, or next to nothing. I believe that all who will take the trouble to look over the fifteen thousand cases of Dr. Collins, or any other extensive tables giving the result of a large experience, will not think this an unfair statement.

* N. England Quarterly Journal of Medicine and Surgery for April, 1843.

But from the facts I have exposed elsewhere, it appears that the medical attendant has a power of doing mischief which has sometimes proved enormous. He may carry a pestilence about with him from house to house, that shall kill more women in a month than he is like to save in his whole life: there is too great reason to fear that he has done so often. Look over the tremendous series of cases proving what I say, and then if a question should ever arise between your private advantage and a score or two of innocent lives, remember that you have been warned against adding your names to the list of those who, with a smile upon their faces, have carried death from bedside to bedside, sometimes ignorantly and innocently, and sometimes negligently, if not criminally; but compared to whom Toffana was a public benefactress, and the Marchioness of Brinvilliers a nursing mother!

We have thus glanced over the range of medical sciences as they present themselves to the student of the present day, looking, as we passed them in review, at the illuminated points they offer, and here and there presuming to add a word of caution or warning.

I should not feel that I was answering their wishes, if, when called to address a body of men younger than myself, about to become members of the profession I have followed, I did not speak freely to them of the peculiar dangers to which they are exposed by the nature of their pursuits.

To us of the medical profession, the great calamities of life present themselves under a strangely modified aspect. Disease is our playmate, and Death is our familiar acquaintance. In the great tragedies of life the vast multitude of mankind look with tearful and throbbing emotion upon scenes to us as little exciting as the stage machinery to the actors in a drama. The still features of the dead, the white folds of the last robe that covers the body, all the objects and thoughts that hush the gay and worldly into momentary solemnity, are to us but the habitual accompaniment of a stage in human history we are often called upon to witness.

By such a discipline even a tender nature loses much of its ready impressibility, but not therefore of its sincere love and sympathy for its fellow creatures in their anguish and trials. By such

training a coarse nature may become brutalized, and forfeit its heavenly birthright—a share in every human sorrow.

In a recent work of fiction, read by unprecedented numbers in both hemispheres, the author has held up the medical profession, in the person of an imaginary physician of a Parisian hospital, to the observation of the world at large. The character of Dr. Griffon, as delineated in the Mysteries of Paris, is an indictment of the scientific physician at the bar of the novel reading public. I will not stop to criticise the work in which it is found. Many of you are familiar with its brilliancy of invention, and variety of incident, its charming impossibilities, and the talking machinery which plays the parts of its different characters. In this book, which is a poem founded on the well known work of Parent Duchatelet, where bursts of enthusiastic morality are succeeded by the inflammatory love-songs of a posturing Creole, and projects of reforming society are skipped by impatient adolescents that they may read the chapter devoted to the description of erotic mania, accusations are brought forward that sooner or later many of you will be destined to hear reëchoed.

The first charge is founded on an absurd misrepresentation of the mode sometimes adopted in hospitals or elsewhere to determine the true relative value of different modes of treatment. You take a hundred patients, says M. Eugene Sue, try one experiment upon them, and see how many die; then take another hundred, and try another experiment, and see how many die under that treatment. This *argumentum ad invidiam* may hereafter serve a mob as the pretext for tearing down a hospital. But is it not clear that more than one mode of treatment, in some diseases, has a positive claim to trial? This is so manifest that, ten to one, the very declaimer against trying experiments is clamorous that some notion or other he has taken up should have a fair trial; that is, should be experimented with on human beings. The true question for the jury is not, "Do hospital or other physicians try experiments?" for strictly speaking, every administration of a remedy is an experiment—but, "Do they study diligently the claims of all new and old methods, and do they know how to select those which offer the best chance of proving useful?" Either the best mode of treating a disease is positively ascertained or not. If it is ascertained, no man would think of employing a

method known to be a comparatively bad one. If it is a question between two or more methods of treatment which is best, and if there is abundant and satisfactory proof that *both are good and safe*, how absurd to say that the physician is not authorized to try more than one! Which one shall it be? Who shall dictate? What can decide between them but a competent trial? Why have a medical profession, except to know, first, what remedies are always certain, and secondly, and ten times oftener, what are most deserving of trial where certainty does not exist?

It is clear in the next place, that if the physician has a right to try a given mode of treatment *once*, which will generally decide nothing at all, he has a right to try it *repeatedly;* perhaps ten times, perhaps a hundred, according to circumstances. It is as clear that he is perfectly justified in counting the days, weeks or months that each case may have lasted, the number of times this or that symptom appeared, the proportion of cases that recovered or terminated fatally.

The dealers in the rag fair of light literature have taken a great fancy, of late, to airing their philanthropy and morality. Everything must come successively into fashion, even the virtues; but when a former "elegant voluptuary" undertakes to reform abuses, we have a right to regret that he did not give the time to learning the facts concerning these supposed abuses, which he wasted on his banquets and his odalisques. Dr. Griffon may very probably stand for the founder of the numerical system. It is true that Louis, after having employed the more ordinary treatment of fever for some years, and learned its general degree of success, determined to make trial of another method, and that not in one or two cases only, but in a sufficient number to furnish some term of comparison with his former method. Here is one of those heartless experiments that M. Sue holds up to the horror of his slip-shod thousands of readers. But what was this method that Louis thus ventured to subject to trial? It was the plan proposed and followed for many years by M. Laroque, a physician in a French hospital; and which had acquired a reputation, seemingly not without foundation, of being attended with a truly remarkable degree of success.

Hard times for the physician of the nineteenth century! The philanthropist at his right ear brands him as a murderous bigot, if

he will not try a new and vaunted method, and the philanthropist at his left ear calls him an experimenting homicide, if he tries it in the only way that can lead to any definite conclusion as to its value.

I pass to another charge contained in the celebrated romance referred to, and involving, to a greater or less extent, the whole medical profession, attacked in the person of a fictitious character. I mean the brutal treatment of the sick in charitable institutions; especially a shameless indifference to the delicacy of females, many of whose infirmities are always revealed with pain, and who are said to be sometimes subjected to public examinations that overwhelm them with confusion and agony.

So far as this country is concerned the accusation would prove wholly unfounded. I believe that in all civilized countries outrages of this sort are only exceptions to a general habit of tenderness and regard for the sick and destitute. Alas, that I should ever have witnessed such an exception! Yes, I have seen, in a great foreign hospital, in broad daylight, in the midst of a crowd of bearded young men, a young, tender and suffering female thus outraged. I have seen a rough hand tear from her figure the only covering of her heaving bosom, and expose her, in the centre of a trampling and wedging multitude, to a scrutiny that would make a harlot shudder. Decency and humanity must be violated, that a præcordial region might be inspected, a professor might expatiate, and a class admire. If the Genius of Science smiled as the new fact was inscribed upon his iron tablets, what was the expression of Heaven's recording angel as he wrote down this unmanly insult in the pages consecrated to the wrongs of helpless poverty?

The amphitheatre for surgical operations is the scene of tortures which should never be undervalued, however familiar the sight of them may have grown to the seasoned student. That act of frightful violence to a fellow creature which you call a "brilliant operation," may be the twentieth, or the fiftieth of the kind you have witnessed. You are used to such sights, and it is hard to realize that others are not used to such sufferings. Do you remember that this seemingly brief space of mortal anguish has been for months or years the one waking and sleeping terror of the

poor victim of disease before you—that, like the iron chamber of the story, this dreadful necessity has been narrowing closer and closer about him day by day, at every approach darkening some window of life and happiness, and now in the midst of fearful sights and sounds is lacerating his convulsed fibres, and pouring out his smoking heart's blood? Do you remember how long the memory of this little period will blend with all his thoughts, how every kind look he received will be treasured in his heart, how every careless word will be recalled, how every thoughtless cruelty will leave its scar deeper than the terrible seams of the knife and the cautery?

I have not left my stated pursuits at your kind request, to come before you either for the sake of bestowing flattery, or receiving applause. To you, and through you to your fellow students, I must offer a few words, which, as they come from my heart and my conscience, I will not dishonor by introducing with an apology.

In the many operations I have attended in the hospitals of France and England, often in the midst of a crowd of students vastly more numerous and less orderly in their deportment than are ever found in the hospitals of our own country, I never but once heard the ordinary theatrical expression of applause at the close of an operation, and it was then immediately and indignantly silenced. Is it necessary for me to inform you that the same manner of expressing approbation has more than once manifested itself on this side of the Atlantic, and even in one of our own public institutions?

If I should see to-morrow in the journals, or in any popular work, a statement of this fact, and an appeal to the feelings of the public on the point, I should expect a simultaneous expression of surprise and disgust to echo through the whole community. Far be it from me to make this appeal to the public; I had rather speak of the fact directly to the faces of those whose duty it is to support the honor of the medical profession. But were an exposure and public denunciation of this truly barbarous practice to appear in any popular publication, I, for one, should be disinclined and unable to say one word in defence of those who had armed every thinking man, much more every gentle-hearted woman and pitying child, against them. No! The listeners to this address may receive it

with applause, or hisses, or silence, as they please. The spectators of a drama, the audience of a concert, may express their delight by ringing plaudits, if they choose. But there is a limit where decency requires us to refrain from indulging our impulses. We do not think it necessary to honor the utterer of an impressive prayer with a round from the floor and galleries of the house of worship. Do so, do so a thousand times before you thus violate the peaceful walls devoted to the languishing and dying poor! Spare your noisy honors to the sanguinary triumphs of the art of mutilation, while the neglected *subject* lies panting in his blood before you. Do you ask who constituted me a critic or a censor in this matter? I answer, God, who made me a man; society, which imposed my duties; my nature, not palsied to sympathy; my profession, not yet degraded beneath that of the gladiator. Better that one of your own number should speak out, than wait for the cheap newspaper and the philanthropic novel writer; better humanize our own manners than have our fellow citizens say of the physician as the early Romans of Archagathus; *transiisse nomen in carnificem*—that his name is changed to that of butcher; better keep a becoming quiet within the asylum of disease, than have the passers by who hear its floors rattling with tumultuous applause, break in upon us, thinking to enjoy an hour of private theatricals, and start with horror to find that such is the tribute of youthful sympathy to a bleeding wretch, broken upon the wheel of science, for the crime of a disease she could not master by her remedies!

Let me devote the few additional moments I may venture to claim, to some remarks respecting your prospects on entering upon the active duties of the profession.

Some plain truths have been recently laid before the student as to the time during which he must, in most cases, be content to live on his future expectations. If fifteen years, as it has been said, are required to obtain a good city practice, of course, where no accidental aid, or peculiar good fortune, conspires with the requisite industry and ability, a long and dreary blank separates many of you from the object of your ambition. What becomes of medical men during this long period? The answer is not a flattering one. Many of them lose their impulse and ambition,

shrink in all their intellectual dimensions, become atrophied and indurated, so that at the period when they have attained success, the sunshine comes too late for their development into their natural proportions. Many are worn out with long waiting, and seek for some other pursuit where their faculties may be called into active exercise. A few only, like the steady oak, add a new and wider ring to their mental growth with every year that creeps torpidly by them. You cannot wonder that four or five years since, I should have said, in a few loose couplets that I still remember,

> But thou, poor dreamer, who hast vainly thought
> To live by knowledge which thy bloom has bought,—
> Thou who hast waited with thy martyr smile,
> Hope ever whispering, *yet a little while*,—
> Too proud to stoop beneath thy nobler aim,
> While prostrate meanness crawls to wealth and fame;
> Thou all unfriended, as thy blossoms fade
> In the chill circle of thy senior's shade;
> Go, spurn the art that every boon denies
> Till age sits glassy in thy sunken eyes;
> Go, scorn the treasury that withholds its store
> Till hope grows cold, and blessings bless no more!

In the calm pursuit of medical truth, in the delightful paths of natural science, in the acquisition of that more liberal range of knowledge for which your busy years will offer little opportunity, in forming and maintaining useful and dignified relations with the society of which you form a part, these trying years will roll gently over you, and as the first silver arrows of time fall among the locks of your waning youth, the golden promises of fortune will begin their tardy fulfillment.

You are to enter upon your professional duties at a time which offers some peculiarities affecting your interests and comfort. Society is congratulating itself, in all its orations and its periodicals, that the spirit of inquiry has become universal, and will not be repressed; that all things are summoned before its tribunal for judgment. No authority is allowed to pass current, no opinion to remain unassailed, no profession to be the best judge of its own men and doctrines. The ultra-radical version of the axiom that

all men are born free and equal, which says, "I am as good as you are," and means, "I am a little better," has invaded the regions of science. The dogmas of the learned have lost their usurped authority, but the dogmas of the ignorant rise in luxuriant and ever-renewing growths to take their place. The conceit of philosophy, which at least knew something of its subjects, has found its substitute in the conceit of the sterile hybrids who question all they choose to doubt in their capacity of levellers, and believe all that strikes their fancy in their character of reverential mystics. This is the spirit which you will daily meet with applied to your own profession, and which might condense its whole length and breadth into the following formula: A question involving the health and lives of mankind has been investigated by many generations of men, prepared by deep study and long experience, in trials that have lasted for years, and in thousands upon thousands of cases; the collected results of their investigations are within my reach; I, who have neither sought after, reflected upon nor tested these results, declare them false and dangerous, and zealously maintain and publish that a certain new method, which I have seen employed once, twice or several times, in a disease, of the ordinary history, progress, duration and fatality of which I am profoundly ignorant, with a success which I (not knowing anything about the matter) affirm to be truly surprising, is to be substituted for the arrogant notions of a set of obsolete dogmatists, heretofore received as medical authorities.

What difference does it make, whether the speaker is the apostle of Thomsonism, the "common sense" scientific radicalism of the barn-yard, or homœopathy, the mystical scientific radicalism of the drawing room? It is the same spirit of ignorant and saucy presumption, with a fractional difference in grammar and elegance of expression. If this is just, it affords you a hint as to the true manner of dealing with such adversaries. Do not think that the special error they utter before you is all that you have to vanquish. The splinter of stone at your feet which you would demolish with your logical hammer, runs deeper under the soil of society than you may at first imagine; it is only the edge of a stratum that stretches into the heart of the blue mountains in the far horizon. Think not to gain anything by arguing against those who are drunken upon the alcohol hot from the still of brainless phi-

lanthropists; who are raving with the nitrous oxide fresh from the retort of gaseous reformers. Argument must have a point of resistance in a fixed reasoning principle, as the lever must have its counter-pressure in the fulcrum; no mariner would hope to take an observation by an ignis fatuus, to steer by a light-house floating unanchored upon the tempestuous ocean! No, your object must not be this or that heretical opinion, but the false philosophy, or the shattered intellectual organization from which it springs; it is Folly who is masking under the liberty cap of Free Inquiry; it is Insanity who has wandered from the hospital without his keeper!

After what I have just said, you cannot think I shall waste your time with allusions to the particular vanities that happen to engross the medical amateurs of our community at this precise moment. On some occasions, and before some audiences, it may be justifiable, and perhaps useful, to show up some extreme and insupportable extravagance as an example, not for the sake of the sharpers who live by it, or the simpletons whom they live upon, but for that of a few sensible listeners who are disturbed by their clamor, and wish to know its meaning. Even then you must expect a shoal of pamphlets to spring upon you with the eagerness of sharks, and the ability of barnacles. You have given a meal to your hungry enemies by merely showing yourself, like an animal that ventures into a meadow during the short empire of the horse flies.

I know too well the character of these assailants to gratify their demand for publicity by throwing a stone into any of their nests. They welcome every cuff of criticism as a gratuitous advertisement; they grow turgid with delight upon every eminence of exposure which enables them to climb up where they can be seen. Little as they know of anything, they understand the hydrostatic paradox of controversy; that it raises the meanest disputant to a seeming level with his antagonist; that the calibre of a pipe-stem is as good as that of a water-spout, when two columns are balanced against each other. They would be but too happy to figure again in the eyes of that fraction of the public which knows enough to keep out of fire and water, and to quote that famous line from the idiot's copybook,

"Who shall decide when doctors disagree?"

As I have given them more prose than they are worth, allow me to toss them a few lines written for a recent anniversary, which, if they are unworthy of your approbation, are quite good enough for them.

The feeble seabirds, blinded in the storms,
On some tall light-house dash their little forms;
And the rude granite scatters for their pains
Those small deposits which were meant for brains.
Yet the proud fabric in the morning sun
Stands all unconscious of the mischief done;
Still the red beacon pours its evening rays
For the lost pilot with as broad a blaze;
Nay, shines all radiance o'er the scattered fleet
Of gulls and boobies, brainless at its feet.

I tell their fate, but courtesy disclaims
To call our kind by such ungentle names;
Yet if your rashness bid you vainly dare,
Think on their doom, ye simple, and beware.

See where aloft its hoary forehead rears
The towering pride of twice a thousand years!
Far, far below the vast, incumbent pile,
Sleeps the broad rock from art's Ægean isle;
Its massive courses, circling as they rise,
Swell from the waves, and mingle with the skies;
There every quarry lends its marble spoil,
And clustering ages blend their common toil;
The Greek, the Roman reared its mighty walls,
The silent Arab arched its mystic halls;
In that fair niche, by countless billows laved,
Trace the deep lines that Sydenham engraved;
On yon broad front, that breasts the changing swell,
Mark where the ponderous sledge of Hunter fell;
By that square buttress look where Louis stands,
The stone yet warm from his uplifted hands;
And say, O Science, shall thy life-blood freeze
When fluttering folly flaps on walls like these?

Go, then, to meet your chosen Science, who waits for you like a bride adorned with her ancestral jewels, and crowned with fresh gathered garlands! How chequered with the ever glancing sun-

beams and the ever flitting shadows of joy and of sorrow, is the long path to which she beckons your eager footsteps. Go forth from these courts of learning, armed with the borrowed wisdom of age, yet ever cherishing the tender sympathies of childhood. The distant murmur which you hear from the trampled fields before you will soon grow louder in your ears, and you will find yourselves swept into the whirlwind of the world's tumultuous conflict. Go forward in hope and serene courage; Disease is calling you from his bed of anguish, Death is looking for you to smooth his pillow, Posterity is expecting you, impatient to be laid in his cradle!

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